

**Amendments to the Claims:**

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for observing high-altitude neutral air, comprising the steps of:

discharging ion particles so as to be ~~trapped influenced by a magnetic field lines of originated from the earth,~~

colliding said ion particles with high-altitude neutral air to generate high velocity neutral particles through charge exchange, and

detecting said high velocity neutral particles to determine the distance to said high-altitude neutral air from at least one of the discharging positions of said ion particles and the detected positions of said high velocity neutral particles from the period of time between the time of discharge of said ion particles and the time of detecting said high velocity neutral particles, to determine the moving direction of said high-altitude neutral air from the detected direction of said high velocity neutral particles, and to determine the spatial position of said high-altitude neutral air,

wherein the relative position between the discharging position of the ion particles and the detected positions of the neutral particles is not predetermined.

2. (Previously Presented) The observing method as defined in claim 1, wherein the density of said high-altitude neutral air is determined by the detection frequency of said high velocity neutral particles.

3. (Previously Presented) The observing method as defined in claim 1, wherein the composition of said high-altitude neutral air is determined by measuring the changes in kinetic energy of said high velocity neutral particles.

4. (Previously Presented) The observing method as defined in claim 1, wherein said

ion particles comprise at least one of krypton particles and xenon particles.

5. (Previously Presented) The observing method as defined in claim 1, wherein said ion particles are discharged in pulses.

6. (Previously Presented) The observing method as defined in claim 1, wherein the discharge of said ion particles is modulated.

7. (Currently Amended) A device for observing high-altitude neutral air, comprising:  
an ion source for discharging ion particles which is disposed on an orbit of the earth,  
and

a neutral particle analyzer disposed on an orbit of the earth;  
wherein the relative position between the ion source and the neutral particle analyzer is  
not predetermined.

8. (Currently Amended) The observing device as defined in claim 7, wherein said ion source discharges ion particles so as to be trapped-influenced by ~~with~~ magnetic field lines of the earth.

9. (Previously Presented) The observing device as defined in claim 8, wherein said ion particles comprise at least one of krypton particles and xenon particles.

10. (Previously Presented) The observing device as defined in claim 8, wherein said ion particles are discharged in pulses.

11. (Previously Presented) The observing device as defined in claim 8, wherein the discharge of said ion particles is modulated.

12. (Previously Presented) The observing device as defined in claim 8, wherein said neutral particle analyzer detects high velocity neutral particles generated as a result of charge exchange between said ion particles and high-altitude neutral air at the time of their collision.

13. (Original) The observing device as defined in claim 7, wherein said ion source and said neutral particle analyzer are mounted on the same space satellite.

14. (Original) The observing device as defined in claim 7, wherein said ion source and said neutral particle analyzer are mounted on respective difference space satellites.